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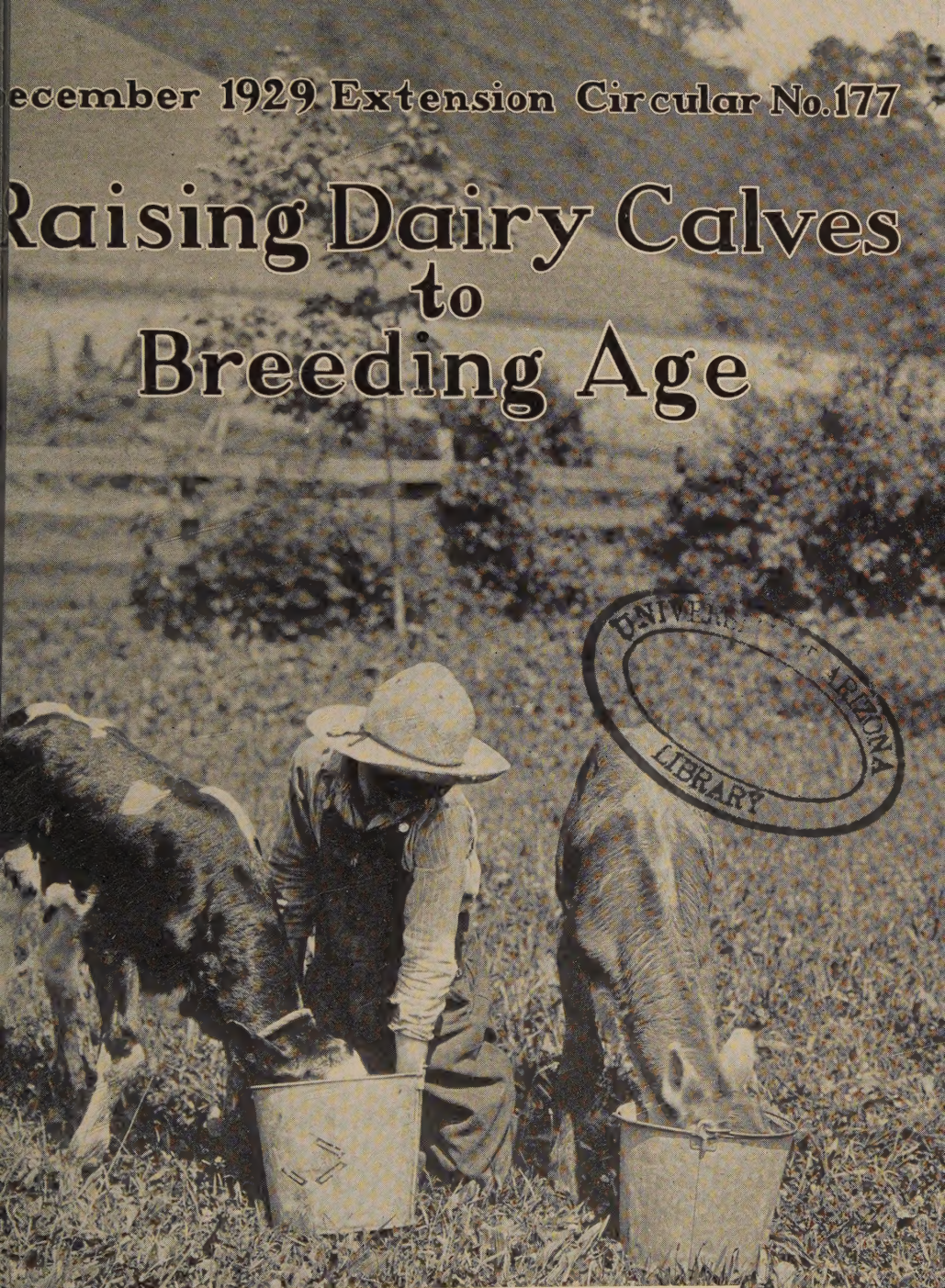
Raising Dairy Calves to Breeding Age



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IMPORTANT FACTS TO REMEMBER IN RAISING DAIRY CALVES

1. Calves worth raising must be from good parents.
2. Good care of both calf and dam at time of birth are essential in successful calf-raising.
3. The calf should be left with its mother for the first two days so that it can get the colostrum milk.
4. Feed fresh clean whole milk at a temperature of 98 degrees for the first two weeks.
5. Make change from whole milk to skim-milk or milk substitute gradually.
6. Weigh calf's milk. Don't over-feed.
7. Cleanliness is absolutely necessary for success.
8. Feed milk or milk substitutes at regular intervals and at a uniform temperature.
9. When the substitution of skim-milk or milk substitutes for whole milk begins offer the calf a little grain and hay. Gradually increase the allowance of both as the calf grows older.
10. Mixed hay is preferable for calves under three weeks of age. Older calves should receive a good quality legume hay.
11. Keep calf in good growing thrifty condition. Stunted calves do not make heavy milkers.
12. A liberal use of good pasture and roughage in growing out heifers will greatly reduce their cost.
13. Care should be exercised to prevent calves from becoming infected with parasites.
14. Don't breed too soon.

Raising Dairy Calves to Breeding Age

By JOHN A. AREY, *Dairy Extension Specialist*

INTRODUCTION

According to the agricultural census report for 1928 there was at that time about 300,000 milk cows in North Carolina or approximately one milk cow for each ten inhabitants. In fifty of the Eastern counties there was an average of only one cow to each sixteen persons. Many farms in these counties are without milk cows.

In the sections of this State from which whole milk is sold, many dairymen depend upon buying cows to replace the discarded ones rather than raise them. This method of replenishing a herd is often responsible for heavy losses caused by bringing in communicable diseases through the new cows. It also rarely ever results in increasing herd production from year to year. Since the ability for milk production is inherited the wise dairyman will use a good bull and raise his best heifer calves. He will see in each of these heifer calves the possibility of a cow which will not only replace a discarded member of his herd, but will also help to raise the average production of the herd.

The average milking period of a cow is only about five years. On this basis it will be necessary for North Carolina farmers and dairymen to raise 60,000 heifer calves annually to even maintain the number of cows in use in 1928, which was not large enough to produce a sufficient quantity of dairy products to meet the demand for home consumption.

The shortage of cows in this State and the great difficulty of securing good cows from without the State, even at high prices, makes it very important that our farmers and dairymen give more attention in the future to the raising of good heifer calves.

CARE OF THE YOUNG CALF

At birth the calf passes through the most critical period of its life. It should be born in a clean, well-bedded stall. If the birth is normal the mother usually begins soon to lick the calf, which in addition to drying it off aids in starting circulation and respiration. If she fails to do this it should be rubbed dry with burlap or some other suitable material. Any foetal membranes that might adhere to the calf's nose should be promptly removed. To guard against infection, disinfect the naval with tincture of iodine soon after birth. The strong, vigorous calf will usually be up and nursing within thirty minutes after birth, but sometimes it is necessary to assist the weak calf in nursing by holding it to the cow's udder. It is important that the calf get the first or colostrum milk which acts as a laxative and aids in starting the digestive organs to functioning properly.

The calf should be left with its mother from one to three days, depending upon the condition of the cow's udder. This practice permits the calf to get the colostrum milk, has a beneficial effect on the cow's udder and also makes it possible for the calf to nurse whenever it desires food. After this period, remove the calf from its mother and place it in a clean, well-bedded and lighted individual stall that is free from drafts. When young calves are kept in individual stalls they cannot injure their ears and navals by sucking each other and it is much easier to control disease. At about three weeks of age the calf can be placed in a large pen with other calves of the same age. A dry lot should be provided in connection with this pen, so the calf can get plenty of exercise and direct sunlight.

TEACHING CALF TO DRINK

It is not difficult to teach a hungry calf to drink, therefore, after separating it from its mother leave it alone until it gets hungry. The first milk offered should be warm milk fresh from its mother. Back the calf into a corner, straddle it and place the bucket containing the milk directly in front of it.

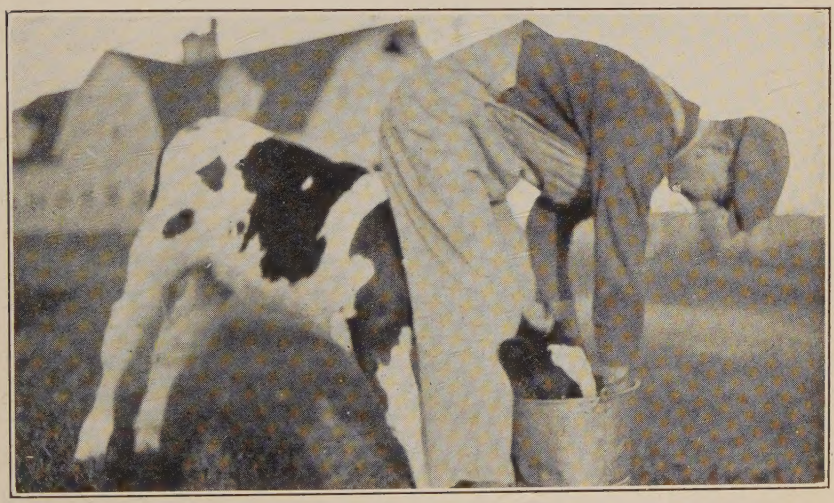
FIRST STEP IN TEACHING A CALF TO DRINK

After dipping two fingers in the milk, place them in the calf's mouth. When it begins to suck gradually lower the hand into the bucket of milk and spread the fingers so that milk will be drawn up between them as the calf sucks. After the calf gets several swallows of milk carefully remove the fingers from its mouth. Repeat this operation as often as is necessary to learn the calf to drink.

THE WHOLE MILK PERIOD

The calf should be fed whole milk preferably from its mother for the first fourteen days. The milk when fed should be fresh, clean and at a temperature of about 98 degrees Fahrenheit. The young calf's stomach is small and cannot digest much milk at a time, therefore, it should be fed three times daily at regular intervals for the first ten days.

The amount to feed for the first week will vary from six to ten pounds daily depending upon the size and vigor of the calf. The Jersey calf does not need more than six to eight pounds per day to start with, while the Holstein or larger calf should have eight to ten pounds. A safe rule to follow is to feed one pound of whole milk for each ten pounds of live weight of the calf. During the second week the daily allowance can be increased from one to two pounds if the calf's appetite is good and no signs of indigestion are apparent. Do not over-feed since this causes scours.



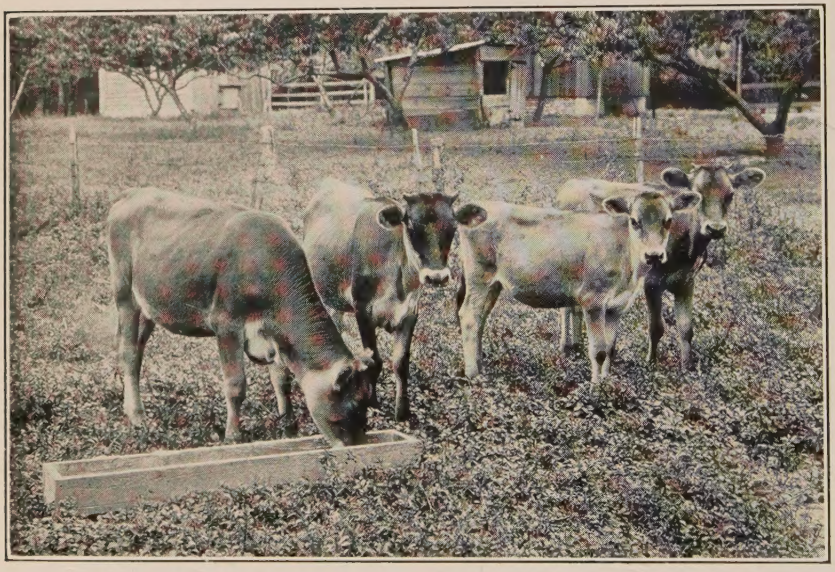
SECOND STEP IN TEACHING A CALF TO DRINK

FEEDING SKIM-MILK

If the calf is doing well at the end of the second week the whole milk can be gradually replaced with skim-milk. The change from whole milk to skim-milk should be gradual at the rate of about one pound per day requiring eight to ten days to make it complete. If the calf should show symptoms of scouring while the change is being made, delay any further substitution of skim-milk for whole milk until these symptoms disappear. All foam should be removed from the skim-milk before it is fed. The daily allowance can gradually be increased until the calf is receiving sixteen to twenty pounds at six months of age. At this age, skim-milk may be discontinued from the calf's ration. However, on farms where it is plentiful it may be fed to advantage up to eight months of age.

FEEDING THE CALF GRAIN AND ROUGHAGE

At two weeks of age or when the substitution of skim-milk for whole milk begins, the calf should be offered small amounts of both grain and hay. At first the calf will eat only a small handful or two of grain daily. This amount can be gradually increased as the calf grows older until it is receiving around three pounds per day at six months of age. No more grain should be fed at any time than the calf will clean up, since it becomes stale if left in the feed box from one feeding to another. The grain should be fed just after the milk and while the calf is still fastened in the stanchion. This system of feeding tends to prevent calves from sucking each other.



GROUP OF THRIFTY JERSEY CALVES RAISED ON SKIM-MILK

Any grain mixture which furnishes the food materials that the calf needs, is palatable and has a good effect on the digestive system is satisfactory. Corn, oats, wheat bran and oil meal are good calf feeds. The following mixtures are recommended:

(1) Three parts by weight of cracked corn and one each of crushed oats and wheat bran.

(2) Thirty pounds of cracked corn, thirty pounds of wheat bran, thirty pounds of crushed oats and ten pounds of linseed meal.

(3) Three parts by weight of cracked corn and one part wheat bran.

The feeding of hay should begin at about the same period as the feeding of grain. On account of the laxative nature of alfalfa it is best to use a clean bright mixed hay for the first three to four weeks. After that good leafy alfalfa hay is the best. However, any good legume hay may be used. Feed the hay sparingly at first and gradually increase the

daily allowance as the calf becomes accustomed to it. A rack should be provided to prevent the calf from wasting and soiling the hay. Soiled hay often causes scours. For a calf under five months of age good hay is preferable to grass as a roughage, on account of the laxative nature of the grass. From about five months of age good mature pasture furnishes a satisfactory roughage.

Silage should not be fed to a young calf, but a small amount may be included in the ration when it is three to four months old. Only good well-cured silage should be used. About two pounds per day is sufficient at first. This amount should be gradually increased as the calf grows older. Silage is laxative and too much will cause scours.

TABLE I

DAILY FEEDING SCHEDULE FOR FIRST SIX MONTHS WITH SKIM-MILK AS THE MAJOR FEED

Age	Pounds Whole Milk	Pounds Skim-Milk	Pounds Grain	Pounds Hay
1 to 2 days	Calf with Dam			
3 to 14 days	6—12			
2 to 3 weeks	12—1	1—12	All calf will clean up	
3 to 4 weeks		12	All calf will clean up	
4 to 5 weeks		13	All calf will clean up	
5 to 6 weeks		14	All calf will clean up	
6 to 8 weeks		15	All calf will clean up	
8 to 12 weeks		16	1½ lbs. grain	Free access
12 to 24 weeks		17	3 lbs. grain	Free access

FEEDING SKIM-MILK POWDER

Fresh powdered skim-milk when properly mixed with water makes a good substitute for natural skim-milk. It is also used in the dry form in calf meal mixtures. There are two forms of powdered skim-milk on the market, one being produced by a spray process and the other by a roller process. The powder produced by the roller process retails at a lower price than the spray process powder and limited experimental work with the latter powder indicates that it is fully satisfactory for calf-feeding.

Reconstructed skim-milk of about the same composition as natural skim-milk can be made by mixing one pound of milk powder with nine pounds of water. In order to get a good even mixture a paste should first be made of the skim-milk powder by mixing with it a small amount of water. To this paste add a sufficient quantity of water at a temperature of 100 degrees Fahrenheit to give the proper dilution and then feed immediately.

The calf should be changed from whole milk to reconstructed skim-milk gradually the same as when natural skim-milk is used.

FEEDING CALF MEALS

Calf meals, fed in the form of a gruel, are not as easily digested as skim-milk, however, satisfactory calves can be grown on them when a good meal is selected and properly fed. There are several proprietary calf meals on the market. When these are used the directions of the manufacturer should be closely followed. A number of different home-mixed calf meals have been tested out by the experiment stations. One of these recommended by the Bureau of Dairying, U. S. Department of Agriculture, is made up as follows: 50 parts, by weight, of finely ground corn, 15 parts linseed meal, 15 parts finely ground rolled oats, 10 parts dried blood flower, 10 parts dried skim-milk and ½ part salt. In preparing this meal for feeding a paste is first made of the meal and then 9 pounds of warm water added for each one pound of dry calf meal used. The solution should be thoroughly mixed and fed at a temperature of

GROUP OF AYRSHIRE CALVES RAISED ON CALF MEAL

100 degrees Fahrenheit. The substitution of calf meal gruel for whole milk should be made very gradually requiring at least four weeks to make it complete. For best results the substitution should not start until the calf is about four weeks old.

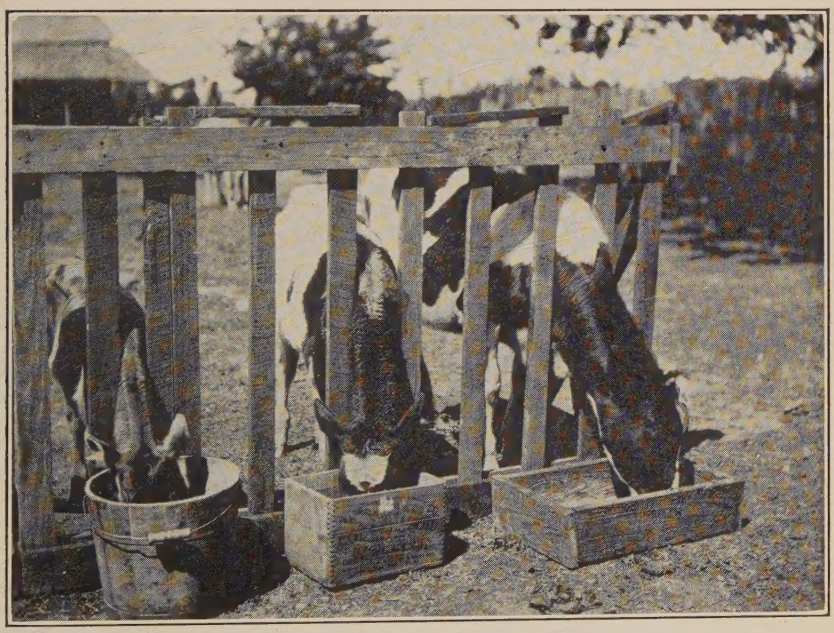
Should scours occur during the substitution reduce the quantity of gruel until this condition disappears. If this does not give results cut the gruel out and put the calf on milk for a temporary period.

The quantity of gruel to feed is practically the same as that of skim-milk. Feeding should be continued until the calf is from four to six months old.

Grain and roughage should be fed with calf gruels the same as with skim-milk.

CLEANLINESS NECESSARY FOR SUCCESS

Cleanliness is absolutely necessary in growing good calves. This applies alike to feed, buckets, stalls and bedding. Nothing but fresh, clean milk and grain should be fed. The hay should be fed from racks to prevent it from getting soiled. The feed buckets should be washed and sterilized with boiling water or steam after each feeding. The bedding should be replaced often enough to keep the stalls clean and dry. Attention to these details will prevent many cases of scours which are caused by bacteria getting into the calf's digestive system with the food.



STANCHIONS ARE NECESSARY IN CALF RAISING

EARLY DEHORNING ADVISABLE

Cows with horns often damage each other and occasionally the caretaker. For this reason it is advisable to remove the horns if the entire herd is composed of grades. Because of the attractiveness of well-trained horns, breeders of purebred dairy cattle usually prefer to let them grow.

The best time to dehorn is before the calf is a week old, when the growth of the horns can be prevented by applying caustic soda or potash to the horn buttons. Clip the hair from over and around the buttons and

wash and thoroughly dry the clipped surface. After wrapping one end of the caustic stick with paper to protect the hand, slightly moisten the other end and carefully rub it on each horn button alternately two or three times. Too much moisture on the stick will cause the caustic solution to spread and result in unnecessary pain and blindness if it should get in the eyes.

FEED AND CARE FROM SIX MONTHS TO FRESHENING

Weaning, which usually takes place around six months of age, should be done gradually, about one week being required. When weaning begins, the grain ration should be increased to provide nutrients to take the place of those formerly furnished by the milk. The grain mixture recommended for young calves is all right to feed at this time provided a good legume hay is being fed. If a low protein roughage, such as grass hay or corn stover is being fed, more bran, oats or linseed meal should be added to the grain mixture. A satisfactory mixture to feed with a low protein roughage can be made by using equal parts, by weight, of corn meal, crushed oats and wheat bran. Although it is possible, through grain, to make up the shortage of protein in a heifer's ration, when non-leguminous roughage is fed, it is not advisable to feed this kind of roughage exclusively to young heifers. Leafy, bright cured, legume hay contains food elements, not found in non-leguminous roughage, which are essential for the best development of the growing calf.

The amount of grain to feed will depend upon the condition of the individual heifer. She should be kept in medium flesh and a good growing condition. Heifers from eight to fifteen months of age need little or no grain when on good pasture in the summer or when receiving an ample allowance of legume hay and silage in the winter. Heifers six months in calf should be fed from four to six pounds of grain daily, so that they will be in good flesh at calving time. When silage is available it should be included in the heifer's ration. Six to seven pounds daily is sufficient for the six months' old heifer. This amount can be gradually increased so that the animal will be receiving around twenty pounds at two years old.

AGE TO BREED

No arbitrary age can be set for breeding heifers. This should be determined by the maturity of each individual. Heifers which are fed grain liberally in addition to their roughage will mature more rapidly than those which received a limited grain ration. Jersey and Guernsey heifers, if properly grown out, should be bred so as to freshen from 24 to 30 months of age. Ayrshire and Holstein heifers should be bred to freshen from 27 to 32 months of age.

WATER AND SALT

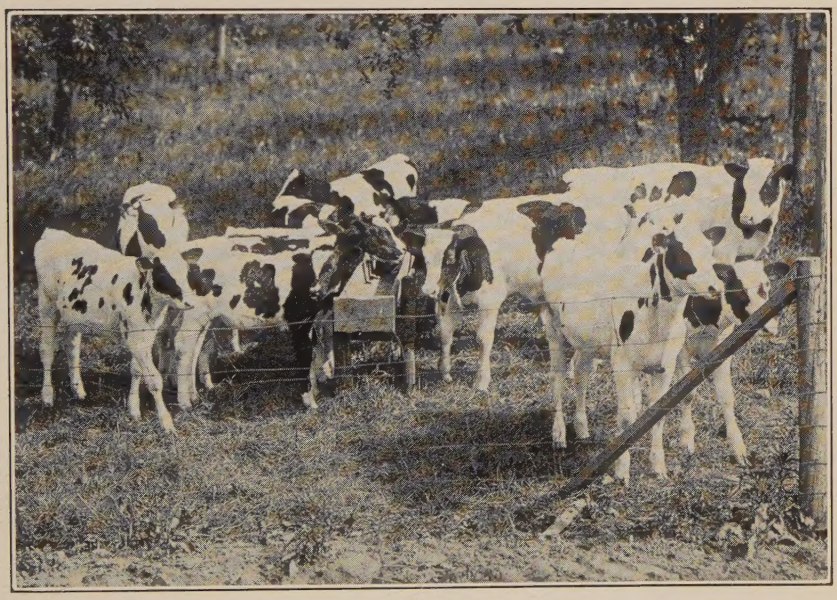
After the calf is about two weeks old it needs both water and salt. Clean fresh water should be offered it at least once per day. Salt should be made available so the calf can get it at will.

COMMON CALF DISEASES AND AILMENTS

Common Scours From Indigestion

Indigestion, or common scours is probably the most frequent ailment of a young calf. It is usually caused by improper feeding, such as overfeeding, feeding out of dirty pails or boxes, irregular feeding or feeding milk too rich in fat. It is easier to prevent this trouble than to cure it.

When the first symptoms appear the calf should be isolated and its milk feed reduced at least one-half. If legume hay is being fed it should be replaced with grass hay until the trouble disappears. A dose of one to three tablespoons full of castor oil, depending upon the age of the calf, mixed with a pint of fresh milk should be given. This will remove the irritating material from the calf's digestive system. Following the action of the oil, give a teaspoon full of a mixture composed of one part salol and two parts each of subnitrate of bismuth and bicarbonate of soda. If the first dose does not give relief it can be repeated at intervals of about six hours until the diarrhea is stopped.



SALT SHOULD BE AVAILABLE ALL THE TIME FOR CALVES ON PASTURE

One case of scours predisposes for another so care should be exercised in getting the calf back on full feed. The cause for the scours should be located and removed. As a preventive measure against indigestion or common scours some dairymen add one tablespoon full of lime water to each quart of milk feed. This is a very good practice when used as a supplement to cleanliness and regularity, but it should not replace either.

White Scours

White scours is a deadly infectious diarrhea. A large percentage of the calves attacted by this disease will die since there is, at present, no effective medicinal treatment. The first symptoms appear soon after the birth in the form of light colored, foul-smelling droppings. The calf becomes dull and listless, grows very weak, usually refuses to suck and dies within two to four days.

Prevention is the best means of combating this disease. The cow should be provided with a clean thoroughly disinfected stall for calving. Infected calves should be isolated and great care exercised by attendants so as not to carry the disease from one animal to another. When the disease occurs a competent veterinarian should be consulted, otherwise a season's crop of calves may be lost.

Cattle Lice

Cattle lice are most prevalent during the late winter and early spring months. Cattle of all age are affected but the greatest losses occur among the young stock and poorly nourished old cattle. A calf that is heavily infested will not make good growth. The itching sensation resulting from the presence of the lice causes calves to rub against trees, post or other objects and the hair often comes off in patches around the tail, head and on the neck and withers.

A two per cent solution of creaolin applied with a spray pump or brush is a fairly effective measure in controling lice. There are several standard dip solutions on the market. When using any of them the directions given on the container should be closely followed. The dip should be applied thoroughly in an even thin layer over the entire body on a warm day. A second application should be given in about ten to fourteen days to kill any lice that may hatch out after the first application. There are three kinds of lice that attack cattle, but the same treatment applies to all of them.

Ring Worm

This is a parasitic skin disease which appears in ring-like spots on the calf's head, neck, shoulders and rump. The hair comes out and a gray scaly crust is formed over the bare surface. These scales should be removed by the use of a stiff brush, soap and water after which the spot should be painted with tincture of iodine. The stalls where the calves are kept should be thoroughly cleaned and whitewashed to prevent further spread of the disease.

Stomach Worms

During late summer, fall and early winter calves in this State often suffer from stomach worms. Especially is this true when they are allowed to graze on poorly-drained pastures. The general symptoms caused by this parasite are: A pale bloodless appearance of the skin about the eyes and mouth, loss of flesh, general weakness, diarrhea and soft swellings, which often appear under the lower jaw.

The feces from either cattle, sheep or goats which are infested with stomach worms contains millions of eggs. In warm moist weather these eggs hatch in a short time after being deposited on the ground. The small worms or larvae then crawl up on the grass blades, when they are moist, and remain there until consumed by grazing animals. In the calf's stomach these worms grow until they are one-half to one and one-half inches in length. They injure their host by sucking its blood and destroying the red blood corpuscles.

Preventive measures are very important in controling this parasite. Since moisture is favorable to its development, pasture on which calves graze should be well-drained. It is advisable to change the calves to fresh pasture as often as possible. The drinking water should be supplied from wells or flowing streams, preferably in troughs raised above the level of the ground. Salt seems to act as a slight preventive, therefore it should be accessible to the calves all the time. When calves are found to be affected they should be isolated immediately.

Medical treatment consists of drenching the infected animals with a solution of copper sulphate and nicotine sulphate.

Lung Worms

In some sections of the State calves as well as older cattle suffer from lung worms. These thread-like worms are found in the bronchial tubes and cause the affected animal to cough, especially at night. At present the life history of this parasite is not fully known and there is no effective medical treatment for it. The methods of prevention are similar to those given for stomach worms.